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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/719,166	12/13/2000	Hiroji Fukui	M&M-033-USA-	2519

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Townsend & Banta  
1225 Eye Street NW Suite 500  
Washington, DC 20005

EXAMINER

MCCLENDON, SANZA L

ART UNIT	PAPER NUMBER
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1711

DATE MAILED: 11/06/2002

12

Please find below and/or attached an Office communication concerning this application or proceeding.

AS-12

<b>Office Action Summary</b>	<b>Application No.</b> 09/719,166	<b>Applicant(s)</b> FUKUI, HIROJI	
	<b>Examiner</b> Sanza L McClendon	<b>Art Unit</b> 1711	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE \_\_\_\_\_ MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

1) ☐ Responsive to communication(s) filed on \_\_\_\_\_.

2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.

3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

4) ☐ Claim(s) \_\_\_\_\_ is/are pending in the application.

4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.

5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.

6) ☐ Claim(s) \_\_\_\_\_ is/are rejected.

7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.

8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

9) ☐ The specification is objected to by the Examiner.

10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a) ☐ All   b) ☐ Some \*   c) ☐ None of:

1. ☐ Certified copies of the priority documents have been received.

2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.

3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

1) <input type="checkbox"/> Notice of References Cited (PTO-892)	4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____.
2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)	5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)
3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____.	6) <input type="checkbox"/> Other: _____.

DETAILED ACTION

*Continued Prosecution Application*

1. The request filed on October 21, 2001 for a Continued Prosecution Application (CPA) under 37 CFR 1.53(d) based on parent Application No. 09/719,166 is acceptable and a CPA has been established. An action on the CPA follows.

*Claim Rejections - 35 USC § 112*

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:  
The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 1 and 7 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

4. The term "low catalytic activity" in claims 4 and 7 is a relative term, which renders the claim indefinite. The term "low catalytic activity" is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably appraised of the scope of the invention. It is unclear if applicant's claimed onium salt does or does not have catalytic activity in the range of 20 to 80 °C. Is applicant intending the onium salt to be activated in temperatures between 20 and 80 °C? Is applicant intending for the onium salt not to be activated between 20 and 80 °C? If not, does this mean absolutely no activity or can it be a minor amount of activity? For example, in example 5 of Lamanna et al, the salt D) has a heat of reaction at 480C with a first peak at 680C and a heat of reaction at 1990C and a second peak at 228 °C. This appears to have an activity at the lower ranges and then again at higher range. What would high catalytic activity include? Would one of ordinary skill of art know where to find a low catalytic active onium salt? Because applicant disclosed onium salts are all trademarked materials, it is unclear if these have or do not have the required catalytic

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activity, i.e. it is difficult to determine whether the prior art made of record is disclosing the same salts or not.

*Claim Rejections - 35 USC § 102*

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claims 4 and 8 are rejected under 35 U.S.C. 102(b) as being anticipated by Lamanna et al (5,554,664).

Lamanna et al teaches photocurable compositions comprising cationic photoinitiators with fluorocarbon anions. Said compositions can comprise (a) at least one cationically curable epoxy monomer, (b) optional, thermoplastic oligomeric or polymeric resins, (c) optional, hydroxyl functional compounds, (d) an energy activatable initiator, (e) conductive particles, (f) optional silane coupling agents, and (g) optional, additional adjuvants. Said initiator comprises an organometallic cation and a fluorocarbon anion, optionally with a stabilizing additive and cure rate enhancer.

Said initiator can include onium salts. Said stabilizers can include macrocyclic compounds of Formula 3—see column 14, lines 1-5, wherein, when Z is oxygen crown ethers are exemplified. The combination of onium salts photoinitiators and the stabilizers of formula 3, when Z is oxygen anticipates claim 4. Lamanna et al teaches that epoxy resins are preferred for conductive adhesive compositions, particularly when stabilizers are present. This teaching reads on claim 8.

The invention of claims 4 and 8 are anticipated by the reference.

*Claim Rejections - 35 USC § 102/35 USC § 103*

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7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claims 1-3 and 6-7 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Lamanna et al (5,554,664).

Lamanna et al teaches photocurable compositions comprising cationic photoinitiators with fluorocarbon anions. Said compositions can comprise (a) at least one cationically curable epoxy monomer, (b) optional, thermoplastic oligomeric or polymeric resins, (c) optional, hydroxyl functional compounds, (d) an energy activatable initiator, (e) conductive particles, (f) optional silane coupling agents, and (g) optional, additional adjuvants. Said initiator comprises an organometallic cation and a fluorocarbon anion, optionally with a stabilizing additive and cure rate enhancer. In addition, Lamanna et al teaches adding photosensitizers or photoaccelerators that have triplet energy of at least 30 kilocalories per mole.

Said initiator can include onium salts. Said stabilizers can include macrocyclic compounds of Formula 3—see column 14, lines 1-5, wherein, when Z is oxygen crown ethers are exemplified. The combination of onium salts photoinitiators and the stabilizers of formula 3, when Z is oxygen anticipates claims 1 and 7. Per example 5 of Lamanna et al, the salt D) has some or a small amount of (low) activity at the lower ranges and then again at a higher range. Thus, this appears to be an inherent property of the onium salt of example 5, or at the least render obvious applicant's low catalytic active onium salt (see 112, 2<sup>nd</sup> rejection above). Lamanna et al teaches that epoxy resins are preferred for conductive adhesive compositions, particularly when stabilizers are present. This teaching reads on claims 2 and 3.

*Claim Rejections - 35 USC § 103*

9. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Lamanna et al (5,554,664).

Lamanna et al does not expressly teach adding a thioxanthone derivative as a sensitizer to increase radiation sensitivity. However, In addition, Lamanna et al teaches adding photosensitizers or photoaccelerators that has triplet energy of at least 30 kilocalories per mole, such as those listed in US 4,985,340, which is incorporated by reference. US 4,985,340 teaches that thioxanthone and it's derivatives are useful photoinitiators that have a triplet state energy of at least 30 kilocalories along with other listed in column 20, ll 53-57. Therefore it would have been obvious for one of ordinary skill in the art to add thioxanthone as a photosensitizer to the compositions as taught by Lamanna et al. The motivation would have been to alter the wavelength sensitivity of the radiation sensitive composition, which will allow for shorter exposure times and/or use less powerful sources of radiation as taught by Lamanna et al in column 16, lines 18-23.

10. Claims 1-3 and 6-7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mahoney et al (5,672,637) in view of Lamanna et al (5,554,664).

Mahoney et al teaches stabilized cationically curable compositions that are curable via activation with energy, such as radiation. Said compositions comprise at least on epoxy monomer and an initiation system. Said initiation system comprises an organometallic complex salt and at least one stabilizing additive. Said stabilizing additives can comprise macrocyclic compounds of formula IV (see column 9, lines 35-40). The compounds of this formula read on the compounds of the instant invention when Z is oxygen.

Mahoney et al does not expressly teach using onium salts in the organometallic initiator system.

Lamanna et al is described in the above rejection. Lamanna et al teaches that the initiator system comprises an organometallic cation and a fluorocarbon anion in combination with a stabilizing agent and cure rate enhancer.

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Said organometallic cations can be onium cations or organometallic complex cations. Lamanna et al teaches the same stabilizing agents as Mahoney et al, including macrocyclic compounds, such as crown ethers.

Mahoney et al and Lamanna et al are analogous art because they are from the same field of endeavor that is the art of stabilized cationically curable epoxy compositions.

Therefore a skilled artisan would have found it obvious to substitute an onium salt photoinitiator for the organometallic complex in combination with an crown ether stabilizer, as taught by Lamanna et al, in the compositions as taught by Mahoney et al. The motivation would have been to obtain a cationically curable compositions that have photoinitiators that display improved solubility in organic media, such as low polarity solvents or non-polar solvents, and display low corrosive activity after use, as taught by Lamanna et al, with the expectation of adequate success in the absence of unexpected.

### *Conclusion*

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sanza L McClendon whose telephone number is (703) 305-0505. The examiner can normally be reached on Monday through Friday 8:00 to 4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, James Seidleck can be reached on (703) 308-2462. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9310 for regular communications and (703) 872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0657.


Sanza L McClendon

Examiner

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SMc

November 4, 2002

  
James J. Seidleck  
Supervisory Patent Examiner  
Technology Center 1700